

AMENDMENTS TO THE DRAWINGS

Three (3) Replacement Sheets of drawings are submitted herewith, to be substituted for the corresponding sheets now on file in the application. In each of Figures 1, 2 and 3 the following changes have been made:

(1) The box identified by reference numeral "2" in the interior thereof has been relabeled "TEST DEVICE."

(2) Reference numeral "2" with an accompanying arrow has been added.

REMARKS

This application has been reviewed in light of the Office Action dated July 19, 2005.

Claims 1-20 are now presented for examination. Claims 1 and 16 are independent. Favorable review is respectfully requested.

The drawings were objected to as failing to show a suitable descriptive legend in box "2" of Figures 1-3. In response to this objection, and in accordance with the Examiner's comments, three Replacement Sheets of drawings, with the label "TEST DEVICE" added in box 2, are submitted herewith. Reference numeral "2" with an accompanying arrow has also been added.

The Examiner also required submission of a marked-up copy of each Replacement Sheet, including annotations indicating the changes made. These copies, marked up in red and labeled "Annotated Sheets," are attached as an appendix to this Amendment.

Claims 1-5, 7, 8, 11-14, 16 and 18-20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Czubytyj et al. (U.S. Pat. No. 5,008,617). The applicants respectfully submit that independent claims 1 and 16 are patentably distinct from the cited art, for the following reasons.

The present invention, as defined in claim 1, is directed to an apparatus for electrically commoning contact pads. ("Commoning" refers to electrically shorting the pads, as explained in the specification, page 5, lines 30-31.) The apparatus includes a container and electrically conductive particles. The particles are in contact with each other, and some of the particles are in contact with the pads, so that the pads are electrically commoned. Claim 16, directed to a method for electrically commoning contact pads, recites a step of providing electrically conductive particles, and a step of maintaining those particles in contact with other such particles and with the pads.

It is thus a feature of the present invention that electrically conductive particles, in contact with each other and with the contact pads, are used to short the pads to each other. The applicants wish to point out that the particles and pads are thus all at the same voltage (which gives rise to the term "common"). It is a fundamental fact of electrostatics that when two conductors are brought into contact with each other, charge is redistributed between them so that electrostatic attraction between them ceases, and both conductors thereafter have the same electrical potential (i.e. voltage with respect to an arbitrary ground potential). One skilled in the art would certainly understand that (i) the

conducting particles and pads of the present invention, when in contact with each other, are at a common voltage and (ii) the commoned arrangement of pads and particles can have no electrostatic attraction within itself.

Czubatyj et al. is understood to disclose a testing method in which a chargeable powder is brought into proximity to an integrated circuit. The powder is characterized as a substance that will accept an electrostatic charge and adhere to a surface of opposite polarity (col. 3, lines 65-67). According to the method of Czubatyj et al., testing is performed by applying an electrical potential between selected portions of the integrated circuit and the powder (col. 5, lines 37-40). Since the powder is electrostatically attracted to functional portions of the circuit (that is, those portions maintained at a test potential), defective circuits may be identified by visual inspection (col. 9, lines 40-47, and Figure 2). The applicants respectfully submit that the method of Czubatyj et al. depends on establishing a voltage between the particles and circuit portions; this is clearly contrary to the present invention, in which contact between the particles and pads establishes a single, common voltage. In addition, it is noteworthy that Czubatyj et al. is not concerned with commoning any electrical circuits, but rather with decorating areas of the circuit at a given potential (see col. 5, lines 40-44, and Figure 1). Accordingly, the above-noted feature of the present invention is neither taught nor suggested in Czubatyj et al., so that the present invention is not anticipated by the reference.

Dependent claims 6, 9, 10 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Czubatyj et al. in view of Kimura et al. (U.S. Pub. Appln. No. 2002/0060583). The applicants respectfully submit that these claims are patentable over the cited art, for the following reasons.

As noted above, it is a feature of the present invention that conducting pads are commoned (i.e. shorted) by using conducting particles in contact with each other and with the pads. In the method of Czubatyj et al. particles are attracted to selected areas of a circuit, but those areas are not shorted (commoned) to each other by contact with the particles. Kimura et al. is understood to disclose electrical testing using a conductive sheet which is conductive only in the thickness direction (para. 148). The sheet is effective to conduct electrical signals from various pads on a board (see Figure 13), but does not common the pads to each other. Indeed, commoning pads (e.g. pads 2 on board 1 in

Figure 13) would require that the conductive sheet be conductive along its surface, which is contrary to the teaching of Kimura et al.

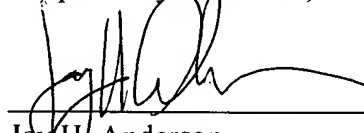
Accordingly, neither of the references suggests the desirability of commoning (shorting) conducting pads to each other; it follows that it would not have been obvious to combine the references in an attempt to arrive at the present invention. A combination of the references would at best yield a method in which a conductive sheet is placed over a board with pads to be tested (Kimura et al.) and chargeable powder is distributed on the sheet, to decorate pads at the test potential (Czubatyj et al.) while avoiding contaminating the board with the powder. Such a method still does not suggest bringing the pads to a common potential, as in the present invention. Accordingly, the present invention would not have been obvious from either of the references, or from a combination thereof.

The other claims in this application are each dependent directly or indirectly from one or the other of independent claims 1 and 16 discussed above and are therefore also believed to be patentable. Since each dependent claims are also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing remarks, the applicants respectfully request favorable reconsideration and early passage to issue of the present application.

The applicants' undersigned attorney may be reached by telephone at (845) 894-3667. All correspondence should continue to be directed to the below listed address.

Respectfully submitted,



Jay H. Anderson
Attorney for Applicants
Registration No. 38,371

INTERNATIONAL BUSINESS MACHINES CORPORATION
Intellectual Property Law Department
B/321-482
2070 Route 52
Hopewell Junction, New York 12533
Facsimile: (845) 892-6363

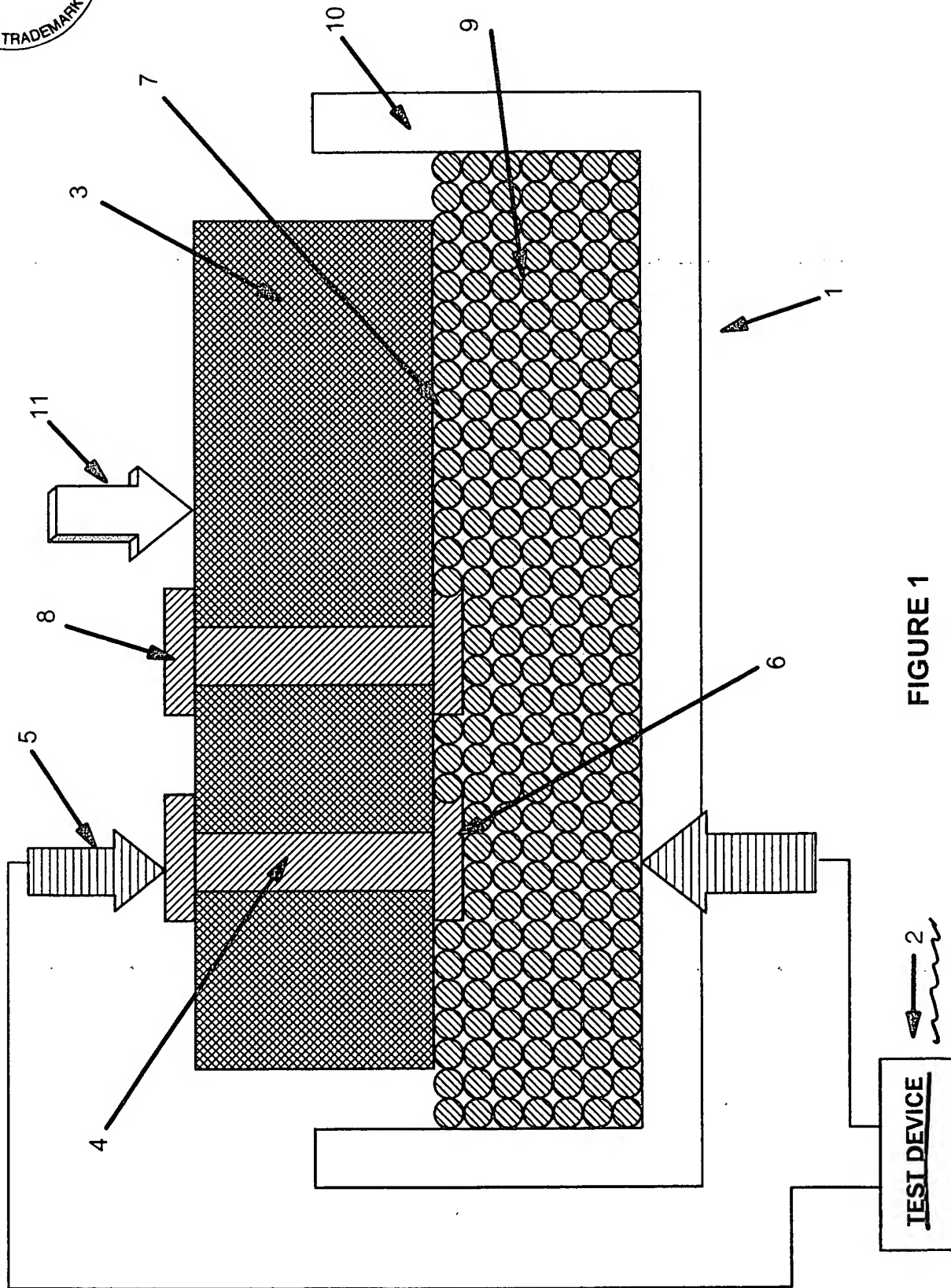


FIGURE 1

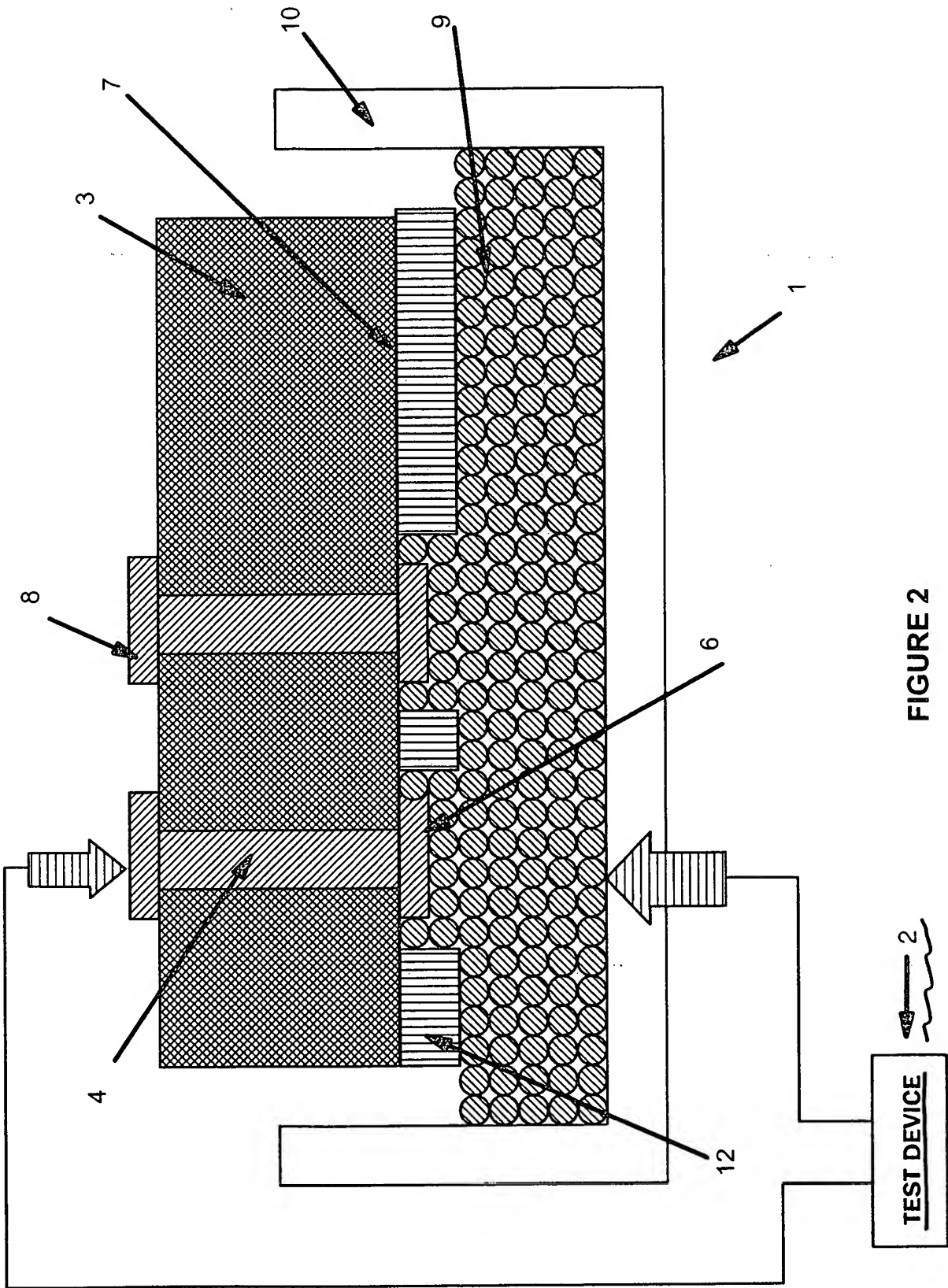


FIGURE 2

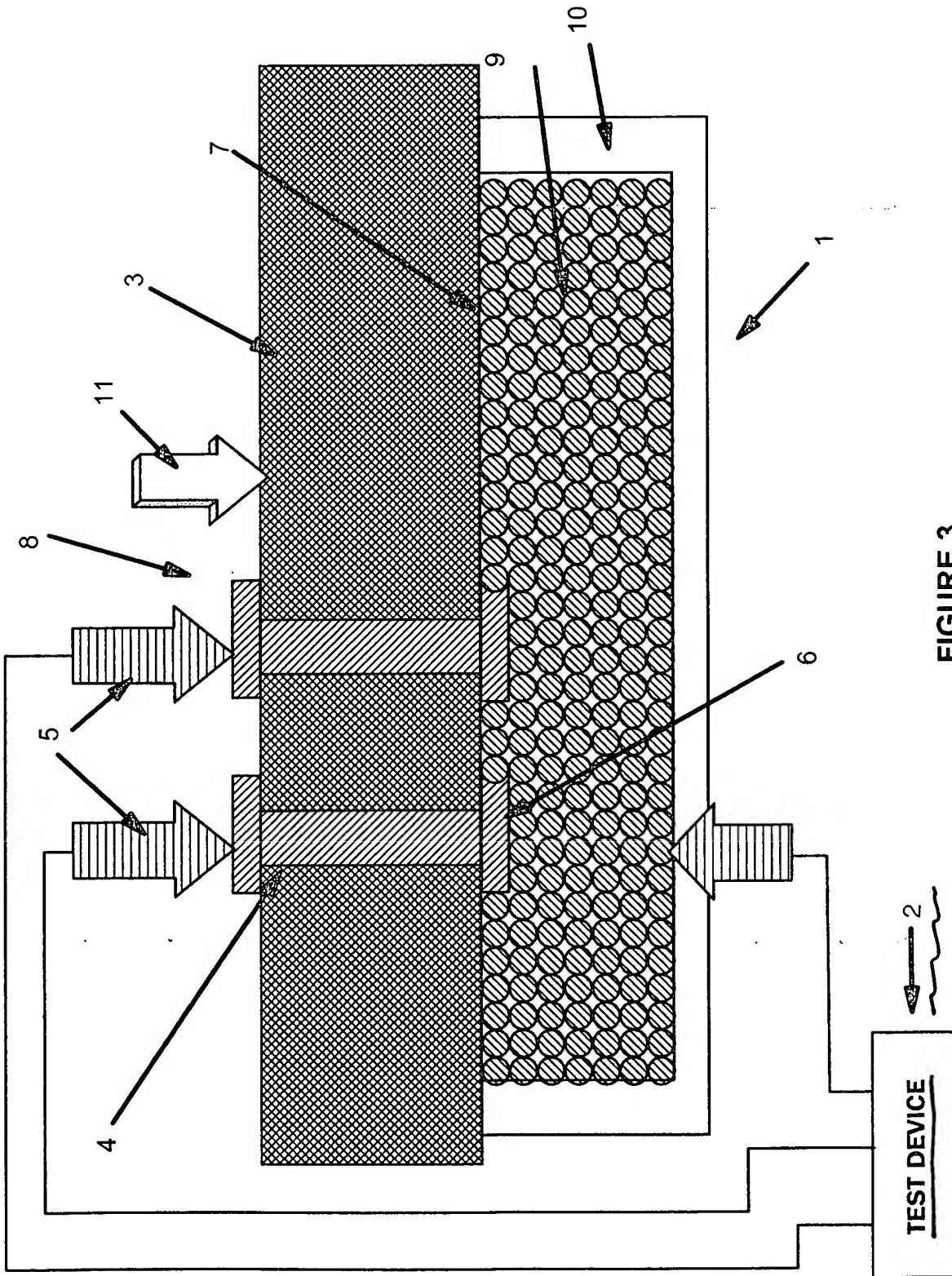


FIGURE 3